



REMARKS/ARGUMENTS

The Office Action mailed May 23, 2006 has been received and its contents carefully considered. Reconsideration and withdrawal of the outstanding objections and rejections are respectfully requested in view of the foregoing amendments and the following remarks.

With regard to the references cited in the search report, attached hereto is two pages of forms, PTO/SB/08, listing the references so that they will be listed on the face of any patent issuing from this application.

With regard to the objection to the drawings, attached is a proposed replacement sheet in which Fig. 4 has been amended to change the reference number 18e to 18a. In addition, Fig. 35 has been amended in another sheet to move the lead line of reference number 4b so it indicates an outer rotor part, as consistent with Fig. 36, which is correct. Approval of these drawing changes is respectfully requested.

A new Abstract is presented by this amendment, which is believed in keeping with the guidelines for the wording of an Abstract.

Claim 1 has been amended to remove the uses of "the said" as suggested by the Examiner. Also, the amendment to claim 1 and 21 removes the "for example" language. Accordingly, it is respectfully submitted that the claims are in full compliance with 35 U.S.C. §112, and withdrawal of the objection and rejection of the claims on this formal basis is respectfully requested.

Turning now to the art rejections, it is noted that claim 1 was rejected as being anticipated by Marshall, and was also rejected as being anticipated by Kuster, and further was rejected as being anticipated by Winkler Otto (hereinafter Winkler). Claims 20-23 were rejected as being unpatentable over Marshall in view of Teesdale. These rejections are respectfully traversed for the following reasons.

Without conceding the propriety of the art rejections necessarily, Applicant in this amendment has amended claim 1 to include, for example, generally similar features to the subject matter previously presented in claims 19 and 20 which are now canceled, as well as additional features. Since claim 20 originally depended from claim 19 which itself depended from claim 1, therefore, it is believed that the anticipation rejections of claim 1 have been overcome at least on that basis.

In an embodiment of the invention, referring to Figs. 34-41, the rotor comprises a rotating inner part 4a and a non-rotating outer part 4b. The outer part 4b has a shallow arcuate recess 72 which receives the arcuate tip face 17g of the vane member 17. An appendage 71 is connected to the outer part 4b at a location between the pivot axis of the vane member 17 and the arcuate recess 72 and is connected to the vane member 17 by an articulation midway between the lateral faces 17c of the vane member. The articulation has an articulation axis such that a plane containing the articulation axis and the axis of the external surface 11 of the rotor passes through the arcuate tip face 17g and the arcuated recess 72. The vane member 17 has a passageway which traverses it between the arcuate tip face 17g and the pivot axis of the vane member and which communicates between the exterior of the casing 1 and the operating chamber. All of these features work together to minimize leakage from one side of the operating chamber across the vane member, relative to the total flow of fluid through the rotary positive displacement machine.

Marshall discloses a rotor with a non-rotating outer part only in Fig. 8 of the drawings (described in column 7, lines 1-46). In all of the other embodiments illustrated (except that of Figs. 10-13, which show a different type of machine), the outer part of the rotor rotates with the inner part, to which it is keyed.

Referring to Fig. 8 of Marshall, the outer part 73 of the rotor does not have a shallow arcuate recess which receives the arcuate tip face of the vane member (oscillating plane member) 22. Therefore, there is only a narrow line of contact between the vane member 22 and the outer part 73 of the rotor, with the result that fluid can easily leak from one side to the other.

There is an appendage (bracket 74) connected to the outer part 73 and to the vane member 22 (by a pivot pin 75). However, this appendage 74 is connected to the outer part 73 at the location of the arcuate tip face of the vane member 22. Consequently, the appendage 74 has to occupy a gap in the axial extent of the tip face. This gap provides a further path for leakage from one side of the operating chamber to the other. This disadvantage is avoided in the present invention by connecting the appendage to the outer parts at a location between the vane member pivot axis and the arcuate recess.

Marshall provides no passageway traversing the vane member 22 and communicating between the exterior of the casing and operating chamber.

Kuster does not disclose a rotor with a non-rotating outer part. In this reference the entire rotor K rotates. The vane member B carries a shoe T which slides on the external surface of the rotor K. There is no recess in the outer surface of the rotor. There is no appendage connected to the outer part of the rotor and to the vane member. There is no passageway traversing the vane member P.

Winkler also does not disclose a rotor with a non-rotating outer part. As can be seen from the drawings, the outer part 2 of the rotor is keyed to the inner part 3 and is therefore constrained to rotate with it. There is no shallow arcuate recess in the external surface of the rotor. There is no appendage connected to the outer part of the rotor and to the vane member 5.

Turning now to the Teesdale reference, which was combined with Marshall in the rejection of claims 20-23, it is respectfully submitted that Marshall and Teesdale do not render obvious the claim invention for at least the following reasons. Marshall is discussed above.

Teesdale does not disclose a rotor with a non-rotating outer part 11. The outer part 11 does not have a shallow arcuate recess but instead has a nearly cylindrical channel which holds a cylindrical tip 10 of the vane member 7. This arrangement pivotally connects the vane member 7 to the outer part 11 of the rotor. A disadvantage of this arrangement is that it makes it difficult to assemble and disassemble the pump. A more serious disadvantage is that the cylindrical tip 10 has to simultaneously perform several different functions, including providing a mechanical connection between the outer rotor part 11 and the vane member 7, which requires a bearing surface on both parts, and acting as a seal between the two sides of the vane member, which requires a sealing surface on both parts. It is a difficult engineering problem to satisfy the requirements of these different functions.

There is no appendage connected to the outer part and to the vane member. No passageway traverses the vane member.

Teesdale does not disclose a coating having axially extending grooves. Page 1, column 2, lines 77-79, states that "a packing sheet 22 is applied to the piston's perimeter and held in grooves 23 therein [i.e., in the piston's perimeter] by binding strips 24." Thus, there are clearly no grooves in the packing sheet 22.

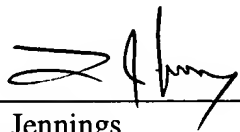
Accordingly, it is respectfully submitted that Teesdale and Marshall, whether they are taken singly or in combination, do not teach or suggest all of the features recited in the amended claims. Moreover, it is respectfully submitted that nothing in the Marshall reference suggests or would direct one skilled in the art to look to Teesdale to remedy the deficiencies thereof, nor

does any part of Teesdale teach or suggest to one skilled in the art to make the combination with Marshall as proposed by the Examiner.

In view of the foregoing, reconsideration and allowance of the application is believed in order, and such actions are earnestly solicited.

If, for any reason, the Examiner disagrees, please call the undersigned attorney at 202-861-1696 in an effort to resolve any matter still outstanding before issuing another action. The undersigned attorney is confident that any issue which might remain can readily be worked out by telephone.

Respectfully submitted,

By: 
Leo J. Jennings
Reg. No. 32,902

Dated: August 23, 2006

Washington Square, Suite 1100
1050 Connecticut Avenue, N.W.
Washington, D.C. 20036-5304
Telephone: 202-861-1500
Facsimile: 202-861-1783